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PATENT AND TRADEMARK OFFICE

Appl. No.	: **09/934,962**
Applicant(s)	: **Krishnamachari, S.**
Filed	: **8/22/2001**
TC/A.U.	: **2623**
Examiner	: **Wu, J.**
Atty. Docket	: **PHA 23-431A**
Appeal Number	: **2004-0930**

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On: 11 November 2004

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Title: **COLOR QUANTIZATION AND SIMILARITY MEASURE FOR CONTENT BASED IMAGE RETRIEVAL**

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BOARD OF PATENT APPEALS AND INTERFERENCES

REQUEST FOR REHEARING under 37 C.F.R. § 41.52

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Sir:

In response to the Decision on Appeal mailed 23 September 2004, the appellant requests a rehearing, based on the following remarks.

The Board has reversed the rejection of claims 1-5 and 11-15 in the subject case, and has upheld the rejection of claims 6-10 and 16-20 under 35 U.S.C. 102(e) over Sato et al. (USP 6,181,818, hereinafter Sato).

The applicant respectfully requests the Board's reconsideration of the rejection of claims 6-10 and 16-20.

The Board has determined that Sato teaches creating areas of colors that are compared, and that these areas of colors "necessarily indicate the frequency of occurrence of the colors". The applicant respectfully disagrees, however, with the Board's resultant conclusion that Sato teaches the applicant's claimed invention.

Claim 6, upon which claims 7-10 depend, claims a method for comparing two images that includes partitioning the first image and the second image into first and second partitions, respectively, determining the frequency of occurrence of each color in each of the partitions, and "comparing the frequency of occurrence of a select set of colors in each first partition with the frequency of occurrence of a corresponding select set of colors in each second partition."

The applicant respectfully maintains that each of Sato's partitions is characterized by a single color, and thus Sato's comparison process cannot be said to include a comparison of the frequency of occurrence of a set of colors ***within*** each partition, as specifically claimed by the applicant.

Sato partitions an image into areas of "near-equal color", based on similar HSV values. A representative color is used to define each region, and the HSV value of this representative color is used as a "color index" (Sato, column 28, lines 53-62). Each region is characterized by the representative color, the area, and the shape of the region (Sato, column 28, lines 43-47). This characterization allows a search based on locating a region in an image having a particularly shaped area of a specified color. As Sato recites:

> "As an image retrieval method from the image database, the seventh embodiment exemplifies a case wherein at least one closed region which is drawn by a searcher (operator) by designating its position, shape, and color is used as an image serving as a search key, and an image stored in the image database is searched using the position, shape, and color of the closed region." (Sato, column 28, lines 21-27)

Further, assuming that the Board's decision may be based on a determination that the size of the area of each region associated with a particular color is representative of the frequency of occurrence of that color, the applicant respectfully notes that claim 6 specifically claims partitioning an image into partitions, and comparing the frequency of colors within each region. Sato specifically teaches the searching of images based on a frequency of

occurrence (size of area) of a single color. (See Sato's FIG. 52, and the above cited text at column 28, lines 21-27).

Because each of Sato's regions is defined by a single color, and because Sato teaches determining a similarity between images based on the characteristics of a single color region, the applicant respectfully maintains that Sato does not teach comparing the frequency of occurrence of a select set of colors in each partition of a first image with the frequency of occurrence of a corresponding select set of colors in each partition of a second image, as specifically claimed in claims 6-10.

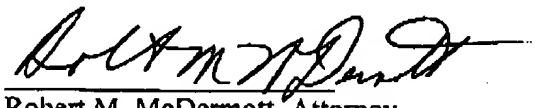
Claim 16, upon which claims 17-20 depend, claims a system for comparing two images that includes a similarity determinator that is configured to determine an image similarity measure based on a comparison of a frequency of occurrence of pixels of each of a first set of colors in a first image and a frequency of occurrence of pixels of each of corresponding colors in a second set of colors in a second image.

As noted above, Sato teaches the comparison of two images based on a single-color comparison (Sato's FIG. 52, and column 28, lines 21-27). The applicant respectfully maintains that a comparison of a frequency of occurrence of a single target color cannot be considered to read upon a comparison of a frequency of occurrence of pixels of each color of two sets of corresponding colors, as specifically claimed by the applicant.

Because Sato teaches determining a similarity between images based on the characteristics of a single color region, the applicant respectfully maintains that Sato does not teach a comparison of a frequency of occurrence of pixels of each of a first set of colors and a frequency of occurrence of pixels of each of corresponding colors in a second set of colors, as claimed in claims 16-20.

Because Sato does not teach each element of the applicant's claims, the applicant respectfully requests that the Board reverse the rejection of claims 6-10 and 16-20 under 35 U.S.C. 102(e) over Sato.

Respectfully submitted,



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